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Colorado Department of Public Health and Environment

June 20, 2014

Jim Sullivan **Director of Utilities** City of Arvada 8101 Ralston Road Arvada, CO 80002-2439

Subject: Sanitary Survey of City of Arvada Community Water System

Public Water System Identification No CO0130001

Jefferson County

Dear Mr. Sullivan:

This letter serves to report the findings of the sanitary survey conducted by the Field Services Section of the Colorado Department of Public Health and Environment's Water Quality Control Division (the Department) at City of Arvada (the Supplier) on May 22 and 23, 2014. The assistance that was provided during the sanitary survey was very helpful and is greatly appreciated. Table 1 identifies the parties present during the sanitary survey.

Table 1: Parties Present

Name	Organization
Judy Schmidt	City of Arvada
Larry Hach	City of Arvada
John Brooks	City of Arvada
Brad Wyant	City of Arvada
Gary Williamson	City of Arvada
Steve Hamel	City of Arvada
Kevin Tohill	City of Arvada
Tara Kratzer	City of Arvada
Jorge Delgado	CDPHE-WQCD-FSS-Denver
Christine Lukasik	CDPHE-WQCD-FSS-Denver

This letter is the Supplier's notification of any significant deficiencies and/or alleged violations of the Colorado Primary Drinking Water Regulations (Regulation 11), 5 CCR 1002-11 identified during the sanitary survey. Table 2 summarizes the number of findings and the required written response and resolution dates.

Table 2: Sanitary Survey Findings

Table 2. Sanitary Survey Findings									
Severity Category	Number Identified	Written Response Due (within 45 days of letter date):	Resolution Due (within 120 days of letter, or Department-approved alternate date):						
Significant Deficiencies	0	Not applicable	Not applicable						
Other Violations	0	Not applicable	Not applicable						
Observations- Recommendations	4	No response required	Not applicable						

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Significant Deficiencies:

According to Regulation 11, Section 11.3(66), a significant deficiency means:

any situation, practice, or condition in a public water system with respect to design, operation, maintenance, or administration, that the state determines may result in or have the potential to result in production of finished drinking water that poses an unacceptable risk to health and welfare of the public served by the water system.

The Supplier's written response to this letter must address all items listed in this category. All significant deficiencies must be corrected and will be followed up by the Department.

No significant deficiencies were identified.

Other Violations:

Other violations may be identified during a sanitary survey that are not significant deficiencies but must be corrected. The Supplier may be contacted by a compliance specialist from the Department's Compliance Assurance Section for additional follow-up on these violations. The Supplier must resolve these violations prior to the subsequent sanitary survey, which will be verified by the Department's inspector at that time.

No other violations were identified.

Observations/Recommendations:

While the Department does not directly follow up on the observations/recommendations, the Supplier is advised to address them. The following observations/recommendations were identified:

1. F991 – Finished Water Storage: Cook Hill Tank 500K (SDWIS ID: 003)

Other Storage Observations: Inspector identified storage observation.

During the sanitary survey, the Department evaluated the Supplier's storage tank operations and maintenance practices. The Department recommends that the Supplier develop a checklist that documents the visual checks performed at the storage tank. The list should include vent condition, overflow condition, access hatch condition, storage tank condition, storage tank security and other measures. The Department recommends that on a year to year basis the Supplier photograph the storage tank, the vent, the overflow and the access hatch to document the condition of the tank. Additionally, the Department recommends that the inspection reports regarding tank inspections by outside parties include photos of the finding within the report and that the Supplier track and establish tank inspection frequency dates.

2. and 3. T995 - Treatment: Ralston WTP and Arvada WTP (SDWIS ID: 001 & 002)

Other Treatment Observations: Inspector identified treatment observation.

- During the sanitary survey, the Department evaluated the log inactivation and removal values achieved for *Giardia lamblia* and viruses. The Department determined that the Supplier is capable of achieving adequate log inactivation and removal for *Giardia lamblia* and viruses by filtration and disinfection at both Ralston WTP and Arvada WTP (SDWIS ID: 001 & 002). The Department recommends that the Supplier continue to measure and record the water temperature, the pH and the free chlorine residual at the entry point after all disinfection has been achieved. The Department recommends that the Supplier evaluate the flow measurement methods for flow exiting the contact basin. These values are required to accurately calculate log inactivation values. The Department recommends that the Supplier develop continuous log inactivation calculation which would help the operators ensure that all water produced at the Supplier's facility has achieved 3 log *Giardia lamblia* and 4 log viral inactivation and removal.
- The Department recommends that the Supplier perform a baffling factor tracer study across both contact basins being used to achieve contact time at Ralston WTP and Arvada WTP (SDWIS ID: 001 & 002). The Department recommends that the Supplier evaluate the practicability of a study being performed. A baffling factor calculated based on a tracer study helps provide the most accurate log inactivation values for *Giardia lamblia* and virus removal and helps ensure that adequate disinfection is being achieved.

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The Department recommends that the Supplier further expand on its contact time calculation document and
further explain how the Supplier calculates log inactivation values at the Ralston WTP and Arvada WTP (SDWIS
ID: 001 & 002). The document should at a minimum include sampling locations and procedures (pH,
temperature and chlorine residual), flow measuring procedures, volume determination calculations, baffling
factor determination explanation, log inactivation calculations, frequency and records keeping procedures.

4. R997 - Monitoring & Recordkeeping and Data Verification:

Other Monitoring & Recordkeeping and Data Observations: Inspector identified Monitoring, Recordkeeping & Data observation.

During the sanitary survey, the Supplier's raw water, combined filter effluent (CFE), finished water total organic carbon (TOC) and entry point sampling locations were discussed at both the Ralston WTP and Arvada WTP (SDWIS ID: 001 & 002). It was agreed upon by both the Supplier and the Department that the Supplier will sample for the following parameters at the following locations;

- The compliance raw water samples will be collected prior to the addition of any treatment and before any recycled water is introduced;
- The CFE and finished water TOC will be collected from the Supplier's filter drain collection system clearwell before water is transferred to contact basins used for disinfection. Settled water should be collected prior to water being treated with an oxidant (i.e. chlorine) and should be filtered with a 0.45 micron filter for dissolved organic carbon and UV 254 analysis; and,
- The entry point sample, which includes the daily chlorine sampling requirements, will be collected after water
 has flowed through the contact basins used for disinfection and before the water enters the distribution
 system or at the first customer.

Please contact Lauren Worley of the Compliance Assurance Section with any questions that you may have with regards to sampling locations. Ms. Worley can be reached at 303-692-3547 or via email at lauren.worley@state.co.us

Field Verification/Sampling

While performing the sanitary survey, the inspector verified operator certification requirements and performed water quality sampling for chlorine and turbidity. Table 3 indicates the operator certification verification for City of Arvada. Table 4 indicates the results of the water quality sampling performed on-site.

Table 3: Operator Certification Verification

Category	Required Certification Level	Name of Operator in Responsible Charge	Certification Level Held and No.	Certification Expiration Date	
Treatment	Α	Bradley Wyant	"A" & 1804	September 28, 2014	
Distribution	4	Cliff Deeds	"4" & 118	November 30, 2016	

Table 4: Sampling Results

Parameter	Sample Location	Value	Units	Notes
Disinfectant Residual	Entry Point Ralston	2.23	mg/L	
Disinfectant Residual	Jimmy Johns	1.52	mg/L	
Turbidity	CFE Ralston	0.08	NTU	

Reminders

- Regulation 11, Section 11.4(1)(b) (Prior Approval Required) requires the Department's approval prior to commencement of construction of any improvements, treatment process modifications or the addition of new water sources.
- Most regulations, guidance documents and forms are available via the Internet on the Department's website. Please link to http://wqcdcompliance.com for further information.

Enclosed with this letter you will find a postage-paid Customer Satisfaction Survey Postcard. Please take a few moments to complete the survey and return it to the Department. Your efforts to provide feedback to improve the sanitary survey process are appreciated.

If you have any questions, please contact me by phone at 303-692-3511 or by email at jorge.a.delgado@state.co.us Thank you for your time and cooperation.

Sincerely

Jorge Delgado, P.E. Senior Field Engineer Field Services Section

Water Quality Control Division

Colorado Department of Public Health and Environment

Encl: Fluoride Worksheets Ralston and Arvada

cc: Jefferson County Public Health

Drinking Water File, PWSID No. CO0130001 (ES.14.INSP.00955) Judy Schmidt, City of Arvada, Water Quality Administrator

Brad Wyant, City of Arvada, Treatment ORC

Gary Williamson, City of Arvada, Distribution System Operator

Lauren Worley, Compliance Specialist, Drinking Water Compliance and Enforcement North Unit, CDPHE-WQCD-DW CA Section

Christine Lukasik, Associate Field Engineer, CDPHE-WQCD-Field Services Section

Clayton Moores, Staff Field Engineer, CDPHE-WQCD-Field Services Section

Katya Mauritson, DMD, Oral Health Unit Director, CDPHE-PSD-Health Equity and Access Branch

Corinne Allen-Ziser, RDH, Oral Health Program Coordinator, CDPHE-PSD-Health Equity and Access Branch

SCHEDULE D

Oral Health Fluoridation Inspection Form FY 2014

			Fluori	de Syst	em Inspe	ction Che	ecklist				
Public Water Inspector:	System ID	CO0130001				Name:	City Of Arva	ıda			
Inspector:		Jorge Delgado		-		Date:			5/23/20	14	
Water System	Name	City of Arvada - Ral	ston	_		Operator		Bradley V	Vyant	_	
	ride Chemica	al Used				ent Chemi	cals Used				
Fluo	rosilicic Acid			Yes Yes	Chlorine Alum			No No	Polyphosphates Ferric		
				No No	Caustic Soda Ash			No Yes	Ammonia KMnO4		
				Yes	Lime				Kivino+		
				No	Other:	ACH and j	powder activated	carbon			
Meets AWW	A and NSF 6	60 specifications	Yes								
Fluoridation Eq	uipment:	Acid									
		ment (NaF or Na2SiF6)								
Type of Feeder: Calibration Proc						Age,	Make & Model:				
Description:											
Condition:							Comments:				
		evice on water supply feed? resent (for very hard water)?					Type: Info:				
	water sortener p	resent (for very hard water):					mio.				
				-							
Fluorosilicie	Acid Storage	e Equipment									
Type of tank ma		F Hetron 922 Resin				A:9	Size of Tank:	7000 gall	lons		
Tank vented to	outside?	Yes			If no, is a	Air gap? backflow d	Yes evice provided?		No		
Day Tank Should be pumr	ed and not filled	l by gravity	Yes Yes								
Scale?			Yes								
Daily weight me		orded?	Yes								
Additive Inje	ection										
Loc	ation of injection	n point: Small Clearwell					Other chem	icals inject	ted at same point (v	vithin 2 feet):	
Type of positiv	ve displacement	pump: Diaphragm Age & Condition l	Description:	15 year	s, Periodic	check valve	If Other: replacements				
Antis	inhon valve pres	sent between pump and injec	ction point?	Yes							
111110	Pump calib	ration procedures (calibratio	n column?):	Calibra	tion Colum	n					
	Pumps sized o	correctly and operating in pro	oper range?:	Yes							
Laboratory 1	Equipment										
		notuo do					Drond	Haah			
Type: Model No.:	Specific Ion Ele			51928	3		Brand: Last (Calibrated:		5/2	23/201
Comments: C	Check Daily with	1.0 standard									
Record Keep	ning										
-	J										
Are dai Comments:	ily records main	tained?: Yes									
Safety Equip	ment										
٠			D. I								
	espirator loves		Dusk mas		respirator						
	pron hemical goggles										
Yes s	afety goggles										
	ye wash station hower										
Projected Flu	uoridation E	quipment Needs for the	next 2 ve	ars:							
Equipme	ent needed: No		, -								
	it needed?										
Comments, C	Observations.	and Recommendation	ıs:								

SCHEDULE D

Oral Health Fluoridation Inspection Form FY 2014

			Fluorio	le Syst	em Inspe	ction Che	cklist			
Public Water System 1	ID	CO0130001				Name:	City Of Arv	ada		
Public Water System l Inspector:	Jo	orge Delgado		-		Date:			5/23/2014	- -
Water System Name	C	ity of Arvada - Blur	nn			Operator		Bradley	Wyant	_
Type of Fluoride Che		d				nt Chemi	cals Used			
Sodium Fluorosilicate	(Na2SiF6)			Yes Yes	Chlorine Alum			No No	Polyphosphates Ferric	
				Yes No	Caustic Soda Ash			No Yes	Ammonia KMnO4	
				Yes	Lime				KWIIO4	
				No	Other:	ACH and p	powder activated	l carbon		
Meets AWWA and N	NSF 60 spec	cifications	Yes							
Fluoridation Equipment:	Dry Feede	er								
Dry Feed Fluoride E										
Type of Feeder: Calibration Procedures:	Volumentr Annually	ic				Age,	Make & Model:	29 years	Wallace and Tierna So	eries #32055
Description:										
		_								
Condition:	Fair						Comments:	Unit is a	ged but in good condit	tion
		on water supply feed?:	Yes				Type:			
water soft	oner present ((for very hard water)?:	No				Info:			
Fluorosilicic Acid Sto	orage Equi	ipment								
Type of tank material:	N.					4: 0	Size of Tank:			
Tank vented to outside?	No				If no, is a	Air gap? backflow d	No evice provided?		No	
Day Tank Should be pumped and no	it filled by ora	avity	No No							
Scale?		,	No							
Daily weight measuremen	ts recorded?		No							
Additive Injection										
Location of in	jection point:	Small Clearwell					Other chem	nicals injec	ted at same point (with	hin 2 feet):
Type of positive displace	ement pump:	Dry Feed by Gravity Age & Condition De					If Other:			
Anticiphon valv	a present het	ween pump and injection	-	No						
Pump	calibration p	procedures (calibration	column?):							
Pumps s	sized correctly	y and operating in prop	er range?:	No						
Laboratory Equipme	ent									
							ъ.			
Type: Specific I Model No.:	on Electrode			51928			Brand: Last	Hach Calibrated:		5/23/20
Comments: Check Dail	y with 1.0 sta	andard								
Decord Veening										
Record Keeping										
Are daily records Comments:	maintained?:	: Yes								
Safety Equipment										
v										
Yes respirator Yes gloves			Dusk mas rubber glo		respirator					
Yes apron	o a alos	31								
No chemical go Yes safety gogg										
Yes eye wash st Yes shower	tation									
Projected Fluoridation	on Equipm	ent Needs for the	nevt 2 vo	arc.						
Equipment needed	l:	CHI INCCUS IOF THE I	icat 4 ye	u1 3.						
When is it needed Approximate cost										
- approximate cost										
Comments, Observat	tions, and l	Recommendations								